

REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow. After amending the claims as set forth above, claims 1-26 are now pending in this application. Claims 5 and 8-23 are withdrawn from consideration.

Applicants wish to thank the Examiner for the careful consideration given to the claims.

Rejection of claims 1-4, 6-7, and 24 based on Nonobe

Claims 1-4 and 24 are rejected under 35 U.S.C. 102(b) as allegedly being anticipated by U.S. Patent Application Publication No. 2002/0192520 ("Nonobe"). Claims 6-7 are rejected under 35 U.S.C. 102(b) as allegedly anticipated by or, in the alternative, under 35 U.S.C. 103(a) as allegedly being obvious over Nonobe. For at least the following reasons, these rejections are traversed.

Claim 1 (as amended) recites, among other things, a fuel cell system comprising a fuel cell stack formed by stacking a plurality of fuel cells for generating power through an electrochemical reaction utilizing reactant gas. An operation mode of the fuel cell stack is determined based on a voltage rising condition of the fuel cell stack that is detected after supply of the reactant gas is started. The voltage rising condition is determined based on a differential coefficient of a voltage value of the fuel cell stack with respect to time upon starting the fuel cell stack in a low temperature environment in advance of obtaining current by applying a load to the fuel cell stack.

Support for the amendments to claim 1 may be found, for example, at page 5, lines 17-25 of the specification.

Nonobe does not teach or suggest the combination of features of claim 1. For example, Nonobe does not teach or suggest that a voltage rising condition is determined based on a differential coefficient of a voltage value of the fuel cell stack with respect to time upon starting the fuel cell stack in a low temperature environment in advance of obtaining current by applying a load to the fuel cell stack. The PTO asserts that the ROM 64 calculating dV/dt in step S308 of Fig. 5 of Nonobe is considered to be determining a voltage rising condition based on a differential coefficient of a voltage value of the fuel cell stack

with respect to time. (Page 3 of the Office Action.) Nonobe aims to determine the humidification of the electrolyte membranes 32 based on the differential value dV/dt in the middle of operating the fuel cell stack. In particular, Nonobe determines that humidification of the electrolyte membranes 32 when obtaining current by applying a load to the fuel cell stack (not in advance of obtaining current). For instance, the current I outputted from the fuel cell 30 at step S301 must be equal to a predetermined current I_{set} before dV/dt is calculated at step S308. (Paragraph 0063 of Nonobe.) Because Nonobe does not teach or suggest the determination of the voltage rising condition upon starting the fuel cell stack in a low temperature environment in advance of obtaining current by applying a load to the fuel cell stack, claim 1 is allowable over Nonobe.

Claim 2 (as amended) recites, among other things, a fuel cell system comprising: a fuel cell stack formed by stacking a plurality of fuel cells for generating power through an electrochemical reaction utilizing reactant gas; voltage rising detection means for detecting a voltage rising condition of the fuel cell stack after supply of the reactant gas is started, wherein the voltage rising detection means is configured to determine the voltage rising condition based on a differential coefficient of a voltage value of the fuel cell stack with respect to time upon starting the fuel cell stack in a low temperature environment in advance of obtaining current by applying a load to the fuel cell stack; and control means for determining an operation mode in accordance with the voltage rising condition detected by the voltage rising detection means and operating the fuel cell stack in the determined operation mode.

Nonobe does not teach or suggest the combination of features of claim 2. For example and analogous to the discussion regarding the rejection of claim 1, Nonobe does not teach or suggest determining the voltage rising condition based on a differential coefficient of a voltage value of the fuel cell stack with respect to time upon starting the fuel cell stack in a low temperature environment in advance of obtaining current by applying a load to the fuel cell stack. Because Nonobe lacks this feature, Nonobe necessarily does not teach or suggest the voltage rising detection means of claim 2. Thus, claim 2 is allowable over Nonobe.

Claim 3 (as amended) recites, among other things, a fuel cell system comprising: a fuel cell stack formed by stacking a plurality of fuel cells configured to generate power through an electrochemical reaction utilizing reactant gas; a voltage rising detector configured

to detect a voltage rising condition of the fuel cell stack after supply of the reactant gas is started, wherein the voltage rising detector is configured to determine the voltage rising condition based on a differential coefficient of a voltage value of the fuel cell stack with respect to time upon starting the fuel cell stack in a low temperature environment in advance of obtaining current by applying a load to the fuel cell stack; and a control unit configured to determine an operation mode in accordance with the voltage rising condition detected by the voltage rising detector and configured to operate the fuel cell stack in the determined operation mode.

Nonobe does not teach or suggest the combination of features of claim 3. For example and analogous to the discussion regarding the rejection of claim 1, Nonobe does not teach or suggest determining the voltage rising condition based on a differential coefficient of a voltage value of the fuel cell stack with respect to time upon starting the fuel cell stack in a low temperature environment in advance of obtaining current by applying a load to the fuel cell stack. Because Nonobe lacks this feature, Nonobe necessarily does not teach or suggest the voltage rising detector of claim 3. Thus, claim 3 is allowable over Nonobe.

Claims 4, 6-7 and 24 depend from and contain all the features of claim 3, and are allowable for the same reasons as claim 3, without regard to the further patentable features contained therein.

For at least these reasons, favorable reconsideration of the rejections is respectfully requested.

Rejection of claims 25-26 based on Nonobe and Roberts

Claims 25-26 are rejected under 103(a) as allegedly being unpatentable over Nonobe and U.S. Patent Application Publication No. 2001/0028967 ("Roberts"). Claims 25-26 depend from claim 3. As previously mentioned, Nonobe does not teach or suggest the voltage rising detector of claim 3 because Nonobe does not teach or suggest determining the voltage rising condition based on a differential coefficient of a voltage value of the fuel cell stack with respect to time upon starting the fuel cell stack in a low temperature environment in advance of obtaining current by applying a load to the fuel cell stack. Roberts does not cure this deficiency. Accordingly, claim 3 and its dependent claims 25-26 are allowable over

Nonobe and Roberts. For at least these reasons, favorable reconsideration of the rejection is respectfully requested.

Conclusion

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by the credit card payment instructions in EFS-Web being incorrect or absent, resulting in a rejected or incorrect credit card transaction, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. §1.136 and authorize payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date

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